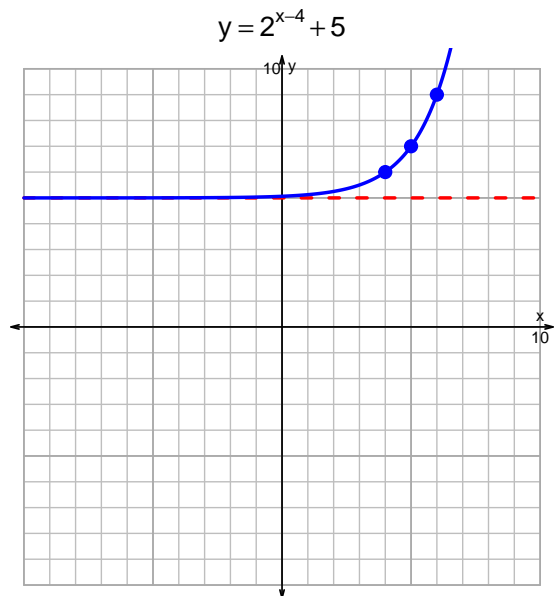
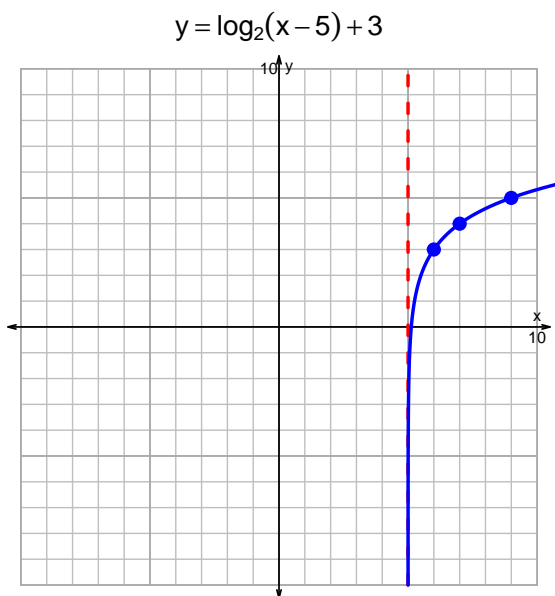


Name: _____

Date: _____

s18QUIZ: EXP LOG (SOLUTION v100)

1. Graph $y = \log_2(x - 5) + 3$ and $y = 2^{x-4} + 5$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$17 = \left(\frac{4}{7}\right) \cdot 10^{5t/3}$$

Divide both sides by $\frac{4}{7}$.

$$\frac{17 \cdot 7}{4} = 10^{5t/3}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{17 \cdot 7}{4} \right) = \frac{5t}{3}$$

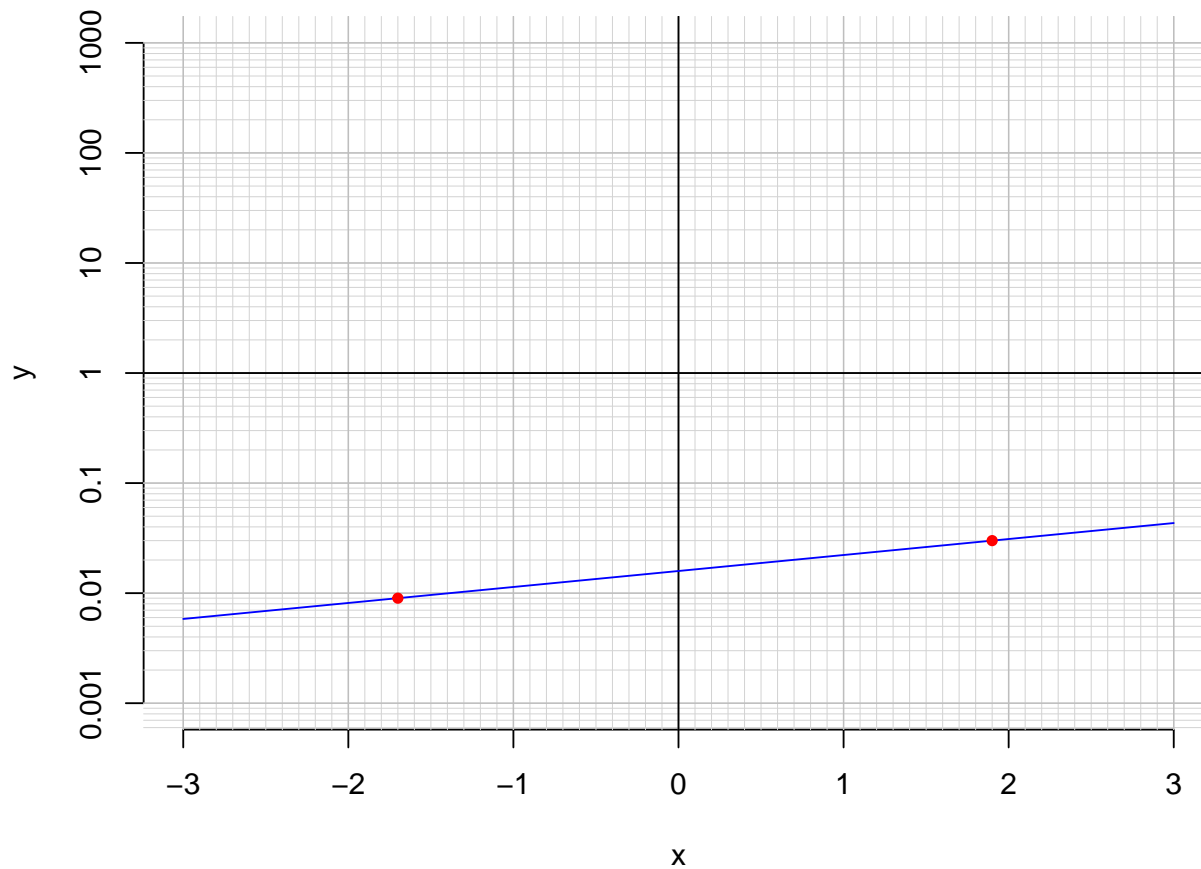
Divide both sides by $\frac{5}{3}$.

$$\frac{3}{5} \cdot \log_{10} \left(\frac{17 \cdot 7}{4} \right) = t$$

Switch sides.

$$t = \frac{3}{5} \cdot \log_{10} \left(\frac{17 \cdot 7}{4} \right)$$

3. An exponential function $f(x) = 0.0159 \cdot e^{0.334x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(-1.7)$.

$$f(-1.7) = 0.009$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{1}{0.334} \cdot \ln\left(\frac{x}{0.0159}\right)$$

- c. Using the plot above, evaluate $f^{-1}(0.03)$.

$$f^{-1}(0.03) = 1.9$$